

## REMARKS

The official action of 9 April 2009 has been carefully considered and reconsideration of the application as amended is respectfully requested.

Applicants have amended independent claims 1 and 11 to limit the claimed dispersing resin to those that comprise, as a monomer constituent, at least one member selected from styrene, acrylic acid, methacrylic acid, acrylate and methacrylate. Support for this recitation appears in the specification as filed at, for example, pages 12-13 and the Examples of dispersions 1-17 on pages 40-51.

Applicants have also corrected claim 19 to recite a “carboxylic acid anion group” (see specification at page 10, last paragraph), and thereby to remove the basis for the rejection under 35 USC 112, second paragraph appearing at page 8 of the official action.

New claim 20 has been added more completely to define the subject matter which Applicants regard as their invention. This claim uses the “consists of” transitional to limit the repeating units of the dispersing resin to those having the carboxylic acid groups and the carboxylic acid anion groups. See MPEP 2111.03.

Claim 19 remains rejected under 35 USC 112, first paragraph, as allegedly failing to comply with the written description requirement. Applicants respectfully traverse this rejection.

The basis for the rejection is respectfully unclear insofar as it does not refer to any specific recitation(s) in the claims as allegedly not being supported by the specification. The rejection only refers to the claim generally and states that “the claim encompasses combinations of ingredients and amounts thereof not disclosed in the specification”. This is respectfully inadequate to set forth even a *prima facie* case for alleged violation of the written description requirement. It is also respectfully incorrect. The claim recites a combination of (a) a coloring agent, (b) a water soluble organic solvent, (c) water and (d) a dispersing resin prepared by a method described in the specification. Each of these components is described in the specification and the specification describes that they may be used in combination and exemplifies how. In this respect, claim 19 is no different than any other composition claim, including claim 1 of the present application, and the specification provides support for the claimed subject matter in the same manner as it does for claim 1.

The difference between claim 19 and claim 1 for present purposes is in the “wherein” clause, which recites the molar ratio of carboxylic acid groups to carboxylic acid anion groups and carboxylate groups in the dispersing resin in functional terms. This recitation **only limits the respective amounts of the repeating units of the dispersing resin**, and is supported *inter alia* by the description in the Examples of the most desirable storage stability (“AA”) in the evaluation described on pages 56-57. The specification conveys with reasonable clarity to those of skill in the art that the compositions of the invention (and not just those exemplified in the specification examples) can realize the high storage stability described in the Examples. See, e.g., specification at page 5, second paragraph (“The invention is aimed to provide an aqueous ink composition having high

storage stability.”); and page 40, third paragraph (“The present invention will be illustrated with reference to the following Examples, but the invention should not be construed as being limited thereto.”). Moreover, the specification conveys that the sole criterion for high storage stability is that the claimed ratio of carboxylic acid groups to carboxylic acid anion groups and carboxylate groups must be selected appropriately. Specifically, the specification makes clear that the significance of the invention resides in the specific molar ratio of unneutralized groups to neutralized group in the claimed dispersing resin (irrespective of the kinds of these groups). The specification thus conveys that, so long as the ratio of the respective repeating units is appropriately controlled, the desired storage stability can be maintained. See specification at, e.g., pages 10-16 and, in particular, page 15, last paragraph.

In view of the above, a proper written description analysis of claim 19 under applicable USPTO guidelines must consider whether the genus defined by the claim (i.e., the genus of dispersing resins comprising the recited repeating units in the ratio as functionally claimed) is sufficiently described in the specification (see MPEP 2163). As discussed in MPEP 2163, the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying characteristics, i.e., structure or other physical and/or chemical properties, **by functional characteristics coupled with a known or disclosed correlation between function and structure**, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the claimed genus. See, also, *Regents of the University of California v. Eli Lilly*, 119 F.3d 1559, 1568, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997), cert. denied, 523 U.S. 1089 (1998).

In the present situation, the specification discloses a correlation between the claimed molar ratio of carboxylic acid groups to carboxylic acid anion groups and carboxylate groups in the dispersing resin on the one hand and the storage stability of the composition on the other (see discussion above). The specification also makes clear that it is the claimed **ratio** of the recited groups in the dispersing resin and not the **kind** of the recited groups that is important (see discussion above). Under these circumstances, one of skill in the art would not expect any substantial variation between species within the claimed genus such that the species described in the specification adequately supports the claimed genus. See, e.g., *In re Rasmussen*, 650 F.2d 1212, 1214, 211 USPQ 323, 326-27 (CCPA 1981) (disclosure of a single method of adheringly applying one layer to another was sufficient to support a generic claim to "adheringly applying" because one skilled in the art reading the specification would understand that it is unimportant how the layers are adhered, so long as they are adhered); *In re Herschler*, 591 F.2d 693, 697, 200 USPQ 711, 714 (CCPA 1979) (disclosure of corticosteroid in DMSO sufficient to support claims drawn to a method of using a mixture of a "physiologically active steroid" and DMSO because "use of known chemical compounds in a manner auxiliary to the invention must have a corresponding written description only so specific as to lead one having ordinary skill in the art to that class of compounds. Occasionally, a functional recitation of those known compounds in the specification may be sufficient as that description.").

For the above reasons, Applicants respectfully submit that (a) the Examiner has not set forth even a *prima facie* case for violation of the written description requirement; and (b) the specification as filed conveys to one of skill in the art that Applicants had

possession of the invention as now claimed as of the application filing date. Accordingly, the rejection for alleged violation of the written description requirement should be withdrawn.

Claim 19 also remains rejected under 35 USC 112, first paragraph, for alleged violation of the enablement requirement. Applicants respectfully traverse this rejection.

The rejection is based on the Examiner's contention that the specification does not provide guidance to enable one of skill in the art **to make** all of the compositions encompassed by the claim. However, as discussed in MPEP 2164.01(b), as long as the specification discloses at least one method for making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. 112 is satisfied.

As discussed above, claim 19 is a typical composition claim wherein the specification discloses the method for making the dispersing resin and the composition can in any event be made simply by combining the recited components. The specification provides examples of how to do this with respect to the exemplified species, which examples can be followed to make any other species falling within the scope of the claim, as would be clear to those of skill in the art. In this circumstance, there is and can be no requirement that the specification describe how to make every possible composition comprising the recited components for the specification to be enabling. See MPEP 2164.05(a) ("The specification need not disclose what is well-known to those skilled in the art and preferably omits that which is well-known to those skilled and already available to the public.").

With particular respect to the recitations in the “wherein” clause, which recites the molar ratio of carboxylic acid groups to carboxylic acid anion groups and carboxylate groups in the dispersing resin in functional terms, the specification makes clear that the sole criterion for the claimed storage stability is that the claimed ratio of carboxylic acid groups to carboxylic acid anion groups and carboxylate groups must be within the range as claimed. Specifically, the specification makes clear that the significance of the invention resides in the specific molar ratio of unneutralized groups to neutralized group in the claimed dispersing resin (irrespective of the kinds of these groups). The specification thus conveys that, so long as the ratio of the respective repeating units is appropriately controlled, the desired storage stability can be maintained. The specification further provides a numerical range within which the molar ratio must fall, and **the claim recites this range.**

In these circumstances, the only experimentation that would be needed to practice the invention as broadly claimed would be to determine whether a dispersing resin comprising any particular molar ratio of carboxylic acid groups to carboxylic acid anion groups and carboxylate groups within the claimed range would provide the recited storage stability. This has already been done for the molar ratios described in Table 2 on page 57 of the specification, and can be done routinely (i.e., without undue experimentation) for any particular molar ratio that has not already been tested simply by repeating the experimentation in the specification with that particular molar ratio. This being the case, the specification is enabling for the invention as claimed. See MPEP 2164.02 (“For a claimed genus, representative examples together with a statement applicable to the genus as a whole will ordinarily be sufficient if one skilled in the art (in view of level of skill, state of the art and

the information in the specification) would expect the claimed genus could be used in that manner without undue experimentation.”).

For the above reasons, Applicants respectfully submit that the specification is enabling for the invention as defined in claim 19 such that the enablement rejection should be withdrawn.

Claims 1-6, 8-10 and 12-19 stand rejected under 35 USC 102(b) as allegedly being anticipated by Yeates et al. Applicants respectfully traverse this rejection.

The claimed invention is based at least in part upon Applicants’ discovery of the result-effective nature in achieving high storage stability of an ink composition of controlling the molar ratio of unneutralized groups to total neutralized and unneutralized groups in a dispersing resin. As disclosed in the application on page 15, line 17 onwards, when the repeating unit structure (1) is too large, dispersion of the dispersing resin is unstable so that the coloring agent dispersion is likely coagulated. Conversely, when the repeating unit structure (1) is too small, the whole of the dispersing resin is solubilized in water, and the liberated resin that does not adhere to the coloring agent increases, whereby a problem that ejection of the ink becomes unstable is liable to occur. Based on this discovery, all claims of record recite a dispersing resin with a molar ratio of unneutralized groups to total neutralized and unneutralized groups within the recited range.

In contrast, the cited reference does not show or suggest the recited molar ratio. Yeates discloses a composition comprising water-dissipatable acrylic polymer, water,

colorant, a water-miscible organic solvent and a water-immiscible organic solvent. The water-dissipatable acrylic polymer has preferably been obtained from the polymerization of one or more olefinically unsaturated monomers having water dispersing groups.

Although Yeates discloses that the acid groups may be subsequently, or during formation of the polymer, fully or partially neutralized with a base containing a cationic charge to give a salt, Yeates is silent about partial neutralization that results in a polymer with a molar ratio in the range of from 1% to 67% of the first repeating unit structure based on the sum of the first repeating unit structure and the second repeating unit structure. Accordingly, Yeates does not show or suggest at least this feature of the claimed invention.

The Examiner has not pointed to any polymer in Yeates with a molar ratio within the claimed range but alleges, **without any evidence in support**, that when the Yeates polymers are partially neutralized, they “will fall within the instantly claimed broad range of amounts because of the lack of definition of the instant claims as to what constitutes the claimed repeating unit structures”. Applicants respectfully submit that this conclusory statement, without evidentiary support, is insufficient to set forth even a *prima facie* case of alleged anticipation.

First, Applicants respectfully note that, in view of Yeates’ silence as to the molar ratio of any partially neutralized polymer that may be disclosed therein, Yeates cannot constitute an anticipatory reference in the absence of extrinsic evidence to show that a polymer comprising the claimed molar ratio of repeating units was **necessarily** present in a



polymer described in the reference. See MPEP 2131.01 ("To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. Such evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill."). The Examiner has introduced no evidence of any Yeates species with the claimed molar ratio and accordingly has not set forth even a *prima facie* case of anticipation for the invention as claimed. See MPEP 2131.03 (Anticipation of a range requires a value within or touching the claimed range.).

Moreover, insofar as the rejection is based on an alleged lack of definition of what constitutes the claimed repeating unit structures, Applicants respectfully note that the Examiner's position is in error because, as described in the specification and as discussed above, the significance of the claimed invention does not reside in what the repeating groups are, but resides in the specific molar ratio of the respective neutralized and unneutralized groups irrespective of the kinds of these groups. This being the case, there is respectfully no basis for the contention that these groups must be defined in the claims. If the Examiner has evidence to contradict the presumptively accurate statements in Applicants' disclosure as to what are the significant features of the claimed repeating units, he is respectfully requested to produce the same or to withdraw the rejection. See MPEP 2144.03 ("If Applicant Challenges a Factual Assertion as Not Properly Officially Noticed or Not Properly Based Upon Common Knowledge, the Examiner Must Support the Finding With Adequate Evidence").

In the absence of evidence that any Yeates polymer has a molar ratio of

repeating units as recited in all claims of record, the reference cannot be considered to anticipate the claimed invention either inherently or otherwise. Accordingly, Applicants respectfully submit that the rejection should be withdrawn.

The claims also stand rejected under 35 USC 103(a) as allegedly being unpatentable over Yeates et al, either alone or in view of Yamazaki et al. Applicants respectfully traverse these rejections.

As discussed above, the claimed invention is based at least in part on Applicants' discovery that the claimed molar ratio of unneutralized groups to total neutralized and unneutralized groups in a dispersing resin is a **result effective variable**. The prior art, including Yeates, did not recognize the result effect nature of this variable.

The object of Yeates is the provision of ink compositions, which are suitable for both thermal and piezo ink jet printers, having high color strength and produce images having a high light-fastness and water-fastness when printed on a substrate. Although Yeates et al refer to "Ink stability" in their examples, they do not recognize the reason for poor ink stability as is clear from Table 1 on page 14, wherein both inks of an Example ("Ink 6") and of the Comparative Examples ("Ink C1" and "Ink C2") are described as "poor" ink stability. Nor is there anything in Yeates to show or suggest that such stability may improved by controlling a molar ratio of unneutralized groups to the sum of neutralized and unneutralized groups in the dispersing resin of the ink compositions described therein.

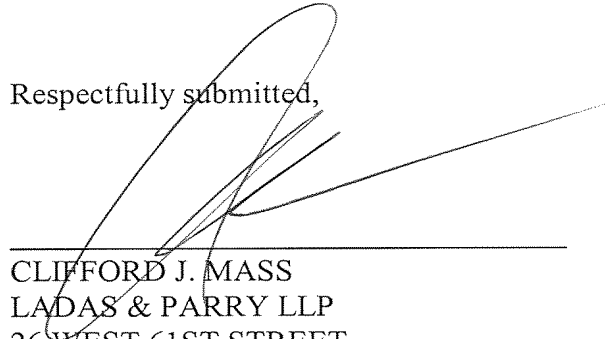
In the absence of anything in Yeates to show or suggest the result effective nature of the claimed variable (molar ratio) in improving storage stability, and since the cited secondary reference cannot supplement this deficiency in the primary reference, Applicants respectfully submit that the references cannot set forth even a *prima facie* case of obviousness for the invention as claimed. See MPEP 2144.05(II)(B) (“A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result- effective variable.).”).

With particular respect to claims 19-20, Applicants respectfully note that these claims are additionally patentable in view of the evidence in the specification which shows the unexpectedly advantageous results in storage stability that can be achieved with the claimed aqueous ink composition (see discussion in Applicants’ Amendment of 1 May 2008 in the paragraph bridging pages 6-7, the contents of which are incorporated herein by reference). By virtue of the functional limitation discussed above, which limits the claimed dispersing resin to those achieving the recited storage stability, claim 19 is commensurate in scope with the evidence in the specification. Moreover, the evidence in the specification is with respect to ink compositions of the Comparative Examples (Inks C1 and C2) that differ from the ink compositions of the Examples only with respect to the proportion of neutralized

groups and are thus closer than any prior art examples. See MPEP 716.02(e)(1) (“Applicants may compare the claimed invention with prior art that is more closely related to the invention than the prior art relied upon by the examiner.”).

In view of the above, Applicants respectfully submit that all rejections and objections of record have been overcome and that the application is now in allowable form. An early notice of allowance is earnestly solicited and is believed to be fully warranted.

Respectfully submitted,



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